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(19) **United States**(12) **Patent Application Publication****Liu et al.**(10) **Pub. No.: US 2016/0226857 A1**(43) **Pub. Date: Aug. 4, 2016**(54) **METHODS AND APPARATUS OF KEY PAIRING FOR D2D DEVICES UNDER DIFFERENT D2D AREAS**(52) **U.S. Cl.**CPC *H04L 63/083* (2013.01); *H04L 63/06* (2013.01); *H04W 12/06* (2013.01); *H04W 12/04* (2013.01)(71) Applicant: **NOKIA TECHNOLOGIES OY**, Espoo (FI)(72) Inventors: **Yang Liu**, Beijing (CN); **Dajiang Zhang**, Beijing (CN)

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ABSTRACT(73) Assignee: **NOKIA TECHNOLOGIES OY**, Espoo (FI)(21) Appl. No.: **15/022,024**(22) PCT Filed: **Sep. 27, 2013**(86) PCT No.: **PCT/CN2013/084455**

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Methods and apparatus are provided for key pairing between peer D2D UEs in different eNBs or D2D areas. A method may comprise: receiving at a first access network node serving a first D2D area from a first user equipment in the first D2D area, a request for keys for a D2D communication between the first user equipment and a second user equipment, wherein the request comprises an identification of a second D2D area where the second user equipment is located and being different from the first D2D area; identifying a second access network node serving the second D2D area based on the identification; sending to the second access network node, a request for a security context of the second user equipment; and receiving from the second access network node the security context for obtaining the keys for the D2D communication.

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